In the Claims:

Please cancel claims 1-18, without prejudice, and add new claims 19-38, in accordance with the following complete listing of all claims ever presented. This listing of claims replaces all prior versions, and listings, of the claims in the instant application:

Claims 1-18 (Canceled)

Claim 19 (New): A method for non-invasive, *in vivo* determination of the conductivity of nerves in a region of skin, said method comprising:

(a) providing a skin substrate to be analyzed;

(b) applying a first non-invasive electrode to a measuring point of the skin substrate;

(c) applying a second non-invasive electrode to a second point of the skin substrate;

(d) subjecting the skin substrate to stimulation; and

(e) analyzing a change in an electrical signal detected by the first and second non-invasive electrodes;

wherein the first and second non-invasive electrodes are associated with an evaluation circuit for analyzing the electrical signal detected by the first and second non-invasive electrodes, the evaluation circuit comprising at least one amplifying element, at least one processing element, at least one recording element, and at least one microprocessor.

Claim 20 (New): The method according to claim 19, wherein the stimulation comprises electrical stimulation.

Claim 21 (New): The method according to claim 20, wherein the electrical stimulation is provided by a stimulation circuit comprising at least two stimulation electrodes in contact with an area of the skin substrate subject to the stimulation and an electrical stimulator connected to the microprocessor.

Claim 22 (New): The method according to claim 19, wherein the skin substrate subjected to stimulation is further subjected to a stress and an electrical signal detected by the first and second non-invasive electrodes with the stress is compared to the electrical signal detected by the first and second non-invasive electrodes without the stress.

Claim 23 (New): The method according to claim 19, wherein the skin substrate comprises facial skin.

Claim 24 (New): The method according to claim 19, wherein the first non-invasive electrode is positioned such that it is capable of transmitting signals representative of the electrical activity of at least one branch of a facial trigeminal nerve selected from the group consisting of an ophthalmic branch, a maxillary branch, a mandibular branch and combination thereof.

Claim 25 (New): The method according to claim 24, wherein the at least one branch comprises the maxillary branch.

Claim 26 (New): The method according to claim 19, further comprising applying a weak alternating current to the first non-invasive electrode and measuring the impedance of the skin substrate.

Claim 27 (New): An apparatus for non-invasive, *in vivo* determination of the conductivity of nerves in a region of skin, said apparatus comprising:

(a) at least one non-invasive measuring electrode suitable for detecting a signal representative of the electrical activity of (i) a sensory nerve of a skin substrate or of (ii) the brain;

(b) an electronic stimulator connected to at least one stimulation electrode;

(c) at least one reference electrode;

(d) a circuit connected to the at least one non-invasive measuring electrode, the electronic stimulator, and the at least one reference electrode for evaluating signals detected or transmitted by said electrodes, the circuit comprising at least one amplifying element, at least one processing element, at least one recording element, and at least one microprocessor; such that a curve representative of change in the signal detected by the at least one non-invasive measuring electrode after a stimulation, as a function of time, can be created and displayed.

Claim 28 (New): The apparatus according to claim 27, wherein the at least one non-invasive measuring electrode is non-polarizable or weakly polarizable.

Claim 29 (New): The apparatus according to claim 27, wherein the at least one non-invasive measuring electrode comprises a material selected from the group consisting of stainless steel, tungsten, noble metals and mixtures thereof.

Claim 30 (New): The apparatus according to claim 27, further comprising an adaptable holder and an adjustable arm having a first end and a second end, wherein the first end is connected to the adaptable holder, and wherein the at least one non-invasive measuring electrode is connected to the second end.

Claim 31 (New): The apparatus according to claim 27, comprising at least two non-invasive measuring electrodes, wherein at least one non-invasive measuring electrode is capable of measuring impedance of the skin substrate.

Claim 32 (New): The apparatus according to claim 31, further comprising at least one adjustable voltage generator associated with at least one transmitting aerial erected in proximity to the at least one non-invasive measuring electrode capable of measuring impedance.

Claim 33 (New): The apparatus according to claim 27, wherein the at least one amplifying element comprises at least one preamplifier having a high input impedance over a voltage range of from -3 to +3 volts.

Claim 34 (New): The apparatus according to claim 33, wherein the at least one preamplifier is connected directly to the at least one reference electrode.

Claim 35 (New): The apparatus according to claim 33, wherein the at least one preamplifier is connected directly to the non-invasive measuring electrode.

Claim 36 (New): The apparatus according to claim 33, wherein the at least one preamplifier is connected to the non-invasive measuring electrode by a shielded cable.

Claim 37 (New): The apparatus according to claim 36, wherein the shielded cable comprises a shield connected to an output of the at least one amplifying element.

Claim 38 (New): The apparatus according to claim 27, wherein the at least one processing element comprises an analog/digital converter.